Minutes of the SMTF Collaboration Meeting, Thursday Dec. 15, 2005

Present:
Hasan Padamsee, Shekhar Mishra, Sergei Nagaitsev, Christian Boffo, Jay Theilacker, Brian Chase, Giorgio Bellettini, Roberto Carosi, Nicola Panzeri, Carlo Pagani, Mike Kelly, Kwang-je Kim, Chris Adolphsen, John Mammosser, Jean Delayen, Tsuyoshi Tajima

As one of the main goals of these meetings, Nigel emphasized the importance of improving communications between SMTF members.

Upcoming Meetings

Generation 4 cryomodule meeting will be at CERN, Jan 16-17

There is a conflict between CERN cryomodule meeting and a LLRF meeting that is being arranged at Fermilab. Sergei pointed out LLRF meeting is mostly to pin down the specs; what phase/amplitude stability is needed from the LLRF system due to the performance of various subsystems, such as the modulators, or the LET, as examples. How much of the budget of the stability requirements comes from LLRF? How do existing tolerances influence the LLRF specs? People from controls and instrumentation areas are interested in having such a meeting. There will be a summary of the results of such a meeting to be shared at the SMTF weekly meeting.

Shekhar re-iterated the purpose of the CERN CM meeting: to revisit the issues for generation 4, outline the work, and discuss the division of work. Contact Harry Carter for more information on this meeting and his plans. Harry's plan are outlined below.

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In addition to being a continuation of the cryomodule
Discussions in Working Group 2 of the October 2005 SMTF Collaboration
meeting, the goals of this meeting are:

(1)     To create and organize the international design team consisting
of teams from the three regions of the GDE

(2)     To  identify leaders (or co-leaders) for each of the regional
teams

(3)     To assess the capabilities and interests of each of the
regional teams

(4)     To review the task list for CM IV
    a.       for completeness
    b.       to establish priorities
    c.       to develop work packages for tasks

(5)     To assign work packages to regional teams

(6)     To develop a first pass schedule with major milestones
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(7) To agree upon a future meeting schedule and define meeting methods (face-to-face, video, telecon, etc.)

Jean-Pierre Delahaye has graciously volunteered to host this meeting at CERN.

Chris pointed out that the GDE linac area team is interested in specific numbers about gen4 for the reference design. It would be good to finalize items such as cavity spacing, packing fraction, quad size, quad length, instrumentation package, space allocation for BPM, etc. A list has been sent out to the linac area group. Some of these numbers will impact the cryo group. This is also one of the reasons the CM gen 4 meeting is being held at CERN so that cryo people can participate. So there should be a tight coupling between the CERN meeting and the GDE linac area group. Some of this information from the CERN meeting should pass to the KEK GDE linac area meeting.

Shekar presented 3 slides on SMTF activities, plans and understandings about cavities and cryomodules. His slides can be found at

http://ilc-dms.fnal.gov/Workgroups/SMTF/SMTF-BiWeekly%20Meeting/Dec15th2005%20Meeting/

Shekhar proposed some discussion items for the next January meeting.

How to utilize available funds for buying more cavities and more materials? There is enough fine grain material to buy five or six 9-cell cavities, and funds to buy additional Nb (should this be large grain Nb?)

Should Fermilab send more help to DESY for preparing dressed cavities and horizontal testing?

Hasan mentioned that this would be an important part of the overall learning experience for Fermilab.

The BCP facility at Argonne will be ready in spring and the first use will be for 3.9 GHz cavities.

Hasan passed the information that part of the GDE R&D board's mission is to evaluate the merits of the on-going and proposed activities. In that context, it would be good to collect all the technical arguments for various SMTF R&D activities that are underway, e.g. cryomodue 3, beam tests for cryomodule 3, cryomodule gen 4, and so on. The points which needs to be emphasized at this stage are the technical need for these activities.

For example, to justify the efforts for cryomodule 4, what specs does Cryomodule 3 not make?
Carlo reviewed that the main reasons for generation 4 are
A bigger quad is needed for the ILC, it needs to be in a more stable position, and a more symmetric position for lower vibrations.
The reduced cavity spacing improves the packing factor and fixes the present $n\pi/2$

spacing, which is bad for dark current acceleration between cavities,
The tuner is not really decided; the coaxial tuner is a promising option, which also improves the packing fraction, allowing cavities closer together.
It is necessary to improve the inter-cavity connections (including bellows) and any new method must be proved in the field to see if it really helps.

Hasan pointed out that these are very helpful items for the list, and more quantitative information would also be valuable, for example, how much does the packing fraction improve by? What are the goals of the alignment tolerances for module4 and how do these compare to ILC needs and to Cryomodule3 performance?

Jlab members had to leave early, but the question about whether the funding had reached successfully to Jlab was raised so that activities may start. (A resolution of this matter is highly desirable.)

M. Kelly reported on progress to prepare an EP system design based on Argonne's understanding of the various horizontal systems. Tajima reported on his extensive visit to DESY, including video taping of EP, and his knowledge of the KEK systems. The DESY system is much more sophisticated than the one at KEK. The goal is now to put an initial design together by March and have it reviewed. The design will be simpler than DESY design. Argonne is providing 1/3 internal funding for this activity.

Talks from the TTC (Frascati) meeting are posted at

https://ilcsupport.desy.de/cdsagenda/fullAgenda.php?ida=a0561

Talks from the GDE (Frascati) meeting are posted at

http://www.linearcollider.org/cms/?pid=1000185

There will be no meeting next week.

It would be good to get a summary of the AES review at an upcoming SMTF meeting.

As always, we invite discussion on the material presented at this meeting.

Regards,

Hasan and Nigel